Maths at Bishopton Primary School

Curriculum Intent

Our vision is for all pupils to be confident about their mathematical ability and understanding. We want them to be able to: reason about their maths; develop their conceptual understanding, problem solving and fluency; become 'deep thinkers' where they acquire maths skills that can be recalled quickly and transferred and applied in different contexts and develop their mathematical curiosity so that they appreciate the beauty and power of mathematics.

Curriculum Implementation

At Bishopton Primary School we have adopted a maths scheme called *Power Maths* to support our teaching of maths.

This is an exciting whole class mastery approach, which has been recommended by the DfE that works for every child. Mastery maths aims for children to acquire a long-term, deep, confident and adaptable understanding of maths concepts. It is based upon the concrete, pictorial and abstract approach.

Every lesson is divided into sections that involve plenty of discovery, sharing, collaboration, practice and reflection. Children are encouraged to solve problems each day through the use of concrete resources, pictorial representations and abstract thinking.

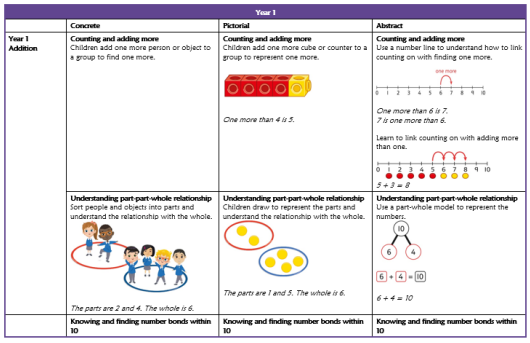
At the heart of this programme is the idea that all children can achieve and be successful mathematicians with the right growth mindset. The whole class works on the same content and no child is left behind.

The Concrete, Pictorial and Abstract Approach CPA

The Concrete Pictorial Abstract (CPA) approach is a system of learning that uses physical and visual aids to build a child's understanding of abstract topics.

When they are comfortable solving problems with physical aids, they are given problems with pictures – usually **pictorial representations** of the concrete objects they were using.

Then they are asked to solve problems where they only have the **abstract** i.e. numbers or other symbols. Building these steps across a lesson can help pupils better understand the relationship between numbers and the real world, and therefore helps secure their understanding of the mathematical concept they are learning.



Year 1			
	Concrete	**Pictorial**	**Abstract**
Year 1 Addition	**Counting and adding more** Children add one more person or object to a group to find one more.	**Counting and adding more** Children add one more cube or counter to a group to represent one more. *One more than 4 is 5.*	**Counting and adding more** Use a number line to understand how to link counting on with finding one more. *One more than 6 is 7.* *7 is one more than 6.* Learn to link counting on with adding more than one. *3 + 2 = 5*
	Understanding part-part-whole relationship Sort people and objects into parts and understand the relationship with the whole. *The parts are 2 and 4. The whole is 6.*	**Understanding part-part-whole relationship** Children draw to represent the parts and understand the relationship with the whole. *The parts are 1 and 5. The whole is 6.*	**Understanding part-part-whole relationship** Use a part-whole model to represent the numbers. *6 + 4 = 10*
	Knowing and finding number bonds within 10	**Knowing and finding number bonds within 10**	**Knowing and finding number bonds within 10**

Calculation polices for Power Maths

EYFS KS1 LKS2 UKS2

The **philosophy** behind *Power Maths* is that being successful in maths is not just about rote-learning procedures and methods, but is instead about problem solving, thinking and discussing. Many people feel they were taught maths in a way that was about memorising formulas and calculation methods, then having to apply them without any real understanding of what or how these methods actually work. *Power Maths* includes practice questions to help children develop fluent recall and develop their conceptual understanding.

Power Maths uses growth mindset characters to prompt, encourage and question children. They spark curiosity, engage reasoning, secure understanding and deepen learning for all.

We have adopted these characters within school as our characteristics of a mathematician. Keep an eye out for our characters all around our school environment.

Curriculum Impact

Throughout each lesson formative assessment takes place and feedback is given to the children through marking and next step tasks to ensure they are meeting the specific learning objective. Teacher's then use this assessment to influence their planning and ensure they are providing a mathematics curriculum that will allow each child to progress. The teaching of maths is also monitored on a termly basis through book scrutinies, learning walks and lesson observations. Each term children from Year 1 and above complete a summative assessment to help them to develop their testing approach and demonstrate their understanding of the topics covered. The results from both the formative assessment and summative assessment are then used to determine children's progress and attainment.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, through additional practice, before moving on.

Fluency and Understanding in Number

At Bishopton Primary School, we strive for our children to be successful and proficient mathematicians. The reason for this is simple: Maths is all around us and we use it in our everyday lives. We use maths when we are baking, when shopping, whilst driving, when solving problems. We use maths when we are drawing, when building, whilst waiting for the bus and when going on holiday. We even use maths when we don't even realise it. Therefore it is essential that we enable our children to be successful in this subject.

How do we help our pupils to become successful mathematicians?

In order for a child to be successful (either personally or academically) they must practise. This is true of any mathematician. Frequent practise will enable children to have a secure understanding and enable them to recall facts quickly and fluently so that they can apply them in many different contexts.

In light of this, we do daily arithmetic sessions so children become fluent in number. The aim of these sessions is to enable children to practise number facts in order to improve the speed of their recall. We believe that over learning number facts will also enable our children to be secure enough to apply their knowledge in a range of contexts.

These sessions usually last for 10 minutes a day and take place before the maths lesson. They involve singing and chanting number facts, rapid recall of number bonds or times tables and arithmetic questions in line with their year group expectations.

A. 25% of 180cm =	B. 34.20 – 12.14 =
C. 399 + 298 =	D. 2,577 ÷ 3 =
E. 90 x 70 =	F. 401 + 103 =

How can you help your child to become fluent mathematicians?

Have fun on: (Click below to access)

When it comes to times tables, speed AND accuracy are important – the more facts your child remembers, the easier it is for them to do harder calculations. Times Table Rock Stars is a fun and challenging programme designed to help students master the times tables! To be a Times Table Rock Star you need to answer any multiplication fact up to 12×12 in less than 3 seconds!

Use of Mathletics, encourages pupils to practise and rehearse their skills and concepts learnt in school, as well as consolidating number facts through fun interactive games and experiences. For example, counting pairs of socks, playing games with dice where they have to use the number bonds, sing number songs (a range of which can be found on YouTube) or play ICT games on the internet such as 'Hit the Button'. See the list of online resources on our website.

Please click below for websites links to our programme of study.

Reception Key stage 1 Key stage 2